

What Is Claimed Is:

1. A method of compensating cross-talk in a connector arrangement, comprising:
providing a plurality of pairs of conductors on a printed circuit board, the pairs of conductors connecting to respective front and rear terminals, each pair of conductors including a ring conductor and a tip conductor, and the ring and tip conductors being substantially disposed in parallel;
sending electrical signals between the front and rear terminals;
generating forward-compensating capacitance, induced between two of the pairs of conductors, proximate the respective front terminals by providing a first capacitor between a first conductor of the first pair and a second conductor of the second pair and providing a second capacitor between a second conductor of the first pair and a first conductor of the second pair;
generating reverse-compensating capacitance/inductance, induced between the two pairs of conductors and caused by the first and second capacitors at the front terminal, proximate the respective rear terminals by providing a third capacitor between the first conductor of the first pair and the first conductor of the second pair and providing a fourth capacitor between the second conductor of the first pair and the second conductor of the second pair; and
wherein unbalanced capacitance/inductance, induced between the two pairs of conductors on the printed circuit board is compensated by the first, second, third, and fourth capacitors.
2. A connector arrangement for compensating cross-talk comprising:
a printed circuit board with front and rear terminals;
a plurality of pairs of conductors on the printed circuit board, the pairs of conductors connecting to respective front and rear terminals, each pair of conductors including a ring conductor and a tip conductor, and the ring and tip conductors being substantially disposed in parallel;
a forward-compensating capacitance inducing capacitance between two of the pairs of conductors, proximate the respective front terminals, the forward-compensating capacitance including a first capacitor between a first conductor of the first pair and a second conductor of the second pair, and a second capacitor between a second conductor of the first pair and a first conductor of the second pair;

a reverse-compensating capacitance inducing capacitance/inductance between the two pairs of conductors, proximate the respective rear terminals, the reverse-compensating capacitance including a third capacitor between the first conductor of the first pair and the first conductor of the second pair, and a fourth capacitor between the second conductor of the first pair and the second conductor of the second pair; and

wherein unbalanced capacitance/inductance, induced between the two pairs of conductors on the printed circuit board is compensated by the first, second, third, and fourth capacitors.

3. The connector arrangement of claim 2, wherein the front terminals include contact springs.

4. The connector arrangement of claim 2, wherein the rear terminals include insulation displacement connectors.

5. The connector arrangement of claim 3, further comprising a housing holding the printed circuit board, the housing defining a plug port for receipt of a plug of a telecommunications cable.

6. The connector arrangement of claim 2, further comprising a housing holding the printed circuit board, the housing defining a plug port for receipt of a plug of a telecommunications cable.

7. A cross-talk compensating member for use in a connector arrangement in a communication system, comprising:

- (a) a planar substrate;
- (b) front terminal members on said substrate for conductively receiving the first and second leads of at least two conductor pairs;
- (c) rear terminal members on said substrate;
- (d) a conductive main pathway on said substrate between each one of said front terminal members and one of said rear terminal members;

(e) said front terminal members, conductive main pathways and rear terminal members cooperating to form at least two pairs of signal pathways through said cross-talk compensating member;

(f) a first pair of parallel conductive compensating pathways on said substrate, each compensating pathway of said first pair connected to one front terminal member from each pair of signal pathways to define a first capacitor;

(g) a second pair of parallel conductive compensating pathways on said substrate, each compensating pathway of said second pair connected to a rear terminal member from each pair of signal pathways to define a second capacitor, one of the rear terminal members of said second capacitor being part of a different signal pathway than one of said front terminal members of said first capacitor.

8. The connector arrangement of claim 7, wherein the front terminal members include contact springs.

9. The connector arrangement of claim 7, wherein the rear terminal members include insulation displacement connectors.

10. A cross-talk compensating member for use in a connector arrangement in a telecommunication system, comprising:

(a) a planar substrate;

(b) front terminal members (1-8) on said substrate for conductively receiving four conductor pairs of first and second leads of a connector plug;

(c) rear terminal members (1-8) on said substrate;

(d) a conductive main pathway (1-8) on said substrate between each one of said front terminal members (1-8) with one of said rear terminal members (1-8);

(e) said front terminal members (1-8), conductive main pathways (1-8) and rear terminal members cooperating to form pairs of signal pathways (1-2, 3-6, 4-5, 7-8) through said cross-talk compensating member;

(f) two first pairs of parallel conductive compensation pathways on said substrate, one of the first pairs of parallel conductive compensation pathways extending from the front terminal member (3) and (5), the other of the first pair of parallel conductive compensation pathways extending from the front terminal members (4) and

(6), each of the first pairs of parallel conductive compensation pathways defining a capacitor;

(g) two second pairs of parallel conductive compensation pathways on said substrate, one of the second pairs of parallel conductive compensation pathways extending from the rear terminal members (3) and (4), the other of the second pair of parallel conductive compensation pathways extending from the rear terminal members (5) and (6), each of the second pairs of parallel conductive compensation pathways defining a capacitor.

11. The connector arrangement of claim 10, wherein the front terminal members include contact springs.

12. The connector arrangement of claim 10, wherein the rear terminal members include insulation displacement connectors.

13. A method of compensating cross-talk in a connector arrangement, comprising:
providing a plurality of pairs of conductors on a printed circuit board, the pairs of conductors connecting to respective front and rear terminals, each pair of conductors including a ring conductor and a tip conductor, and the ring and tip conductors being substantially disposed in parallel;

sending electrical signals between the front and rear terminals;

generating forward-compensating capacitance, induced between two of the pairs of conductors, proximate the respective front terminals by providing a first electro-magnetic field between a first conductor of the first pair and a second conductor of the second pair and providing a second electro-magnetic field between a second conductor of the first pair and a first conductor of the second pair;

generating reverse-compensating capacitance/inductance, induced between the two pairs of conductors and caused by the first and second capacitors at the front terminal, proximate the respective rear terminals by providing a third electro-magnetic field between the first conductor of the first pair and the first conductor of the second pair and providing a fourth electro-magnetic field between the second conductor of the first pair and the second conductor of the second pair; and

wherein unbalanced capacitance/inductance, induced between the two pairs of conductors on the printed circuit board is compensated by the first, second, third, and fourth electro-magnetic fields.

14. A connector arrangement for compensating cross-talk comprising:

a printed circuit board with front and rear terminals;

a plurality of pairs of conductors on the printed circuit board, the pairs of conductors connecting to respective front and rear terminals, each pair of conductors including a ring conductor and a tip conductor, and the ring and tip conductors being substantially disposed in parallel;

a forward-compensating capacitance inducing capacitance between two of the pairs of conductors, proximate the respective front terminals, the forward-compensating capacitance including a first electro-magnetic field between a first conductor of the first pair and a second conductor of the second pair, and a second electro-magnetic field between a second conductor of the first pair and a first conductor of the second pair;

a reverse-compensating capacitance/inductance inducing capacitance/inductance between the two pairs of conductors, proximate the respective rear terminals, the reverse-compensating capacitance/inductance including a third electro-magnetic field between the first conductor of the first pair and the first conductor of the second pair, and a fourth electro-magnetic field between the second conductor of the first pair and the second conductor of the second pair; and

wherein unbalanced capacitance/inductance, induced between the two pairs of conductors on the printed circuit board is compensated by the first, second, third, and fourth electro-magnetic fields.

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